Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
CN 028
Trenton, N.J. 08625-0028
(609) 633-1408
Fax # (609) 633-1454

APR 16 1990

Janet Feldstein, Project Manager
New Jersey Compliance Branch
Emergency and Remedial Response Division
U.S. Environmental Protection Agency - Region II
26 Federal Plaza
New York, NY 10278

Dear Ms. Feldstein:

Re: SCP Carlstadt Superfund Site
ARAR's/Permit Equivalents
First Operable Unit

Enclosed please find the discharge limits developed for a ground water treatment system discharging into Peach Island Creek. These limits were generated based on the analytical data collected as a part of the remedial investigation ongoing at the site.

Be advised that the effluent discharge limitations contained herein may be subject to change or revision based on the following:

1. Additional information regarding background concentrations in Peach Island Creek;

2. changes in the chemical characteristics of the ground water; and

3. changes in Federal and State regulations or water quality criteria.

If you have any questions concerning this package, please contact me at (609) 633-1455.

Sincerely,

Pamela A. Lange, Case Manager
Bureau of Federal Case Management

PAL:cn

Enclosure

c: Linda Welkom, DWR/BGWPA
Steve MacGregor, DHSM/BEERA

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EPA

Part V

INTERIM CHRONIC TOXICITY TESTING METHODOLOGIES FOR USE IN THE NJPDES PERMIT PROGRAM

Version 1.0

February 1989

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Notice: Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

AUTHORITY AND PURPOSE

These interim methods for the conduct of whole effluent chronic toxicity testing are established under the authority of the NJPDES permitting program (N.J.A.C. 7:14A-2.9) for discharges to the waters of the State. They are intended as interim measures until the formal establishment of a laboratory certification program to govern the conduct of whole effluent chronic toxicity testing is established under N.J.A.C. 7:18. As such these methods are intended to be used to determine compliance with discharge permits issued under the authority of the NJPDES permit program. Tests are to be conducted in accordance with the general conditions and test organism specific method specifications contained in this document. All other conditions and specifications can be found in the cited USEPA methodologies (USEPA 1988, 1989).

Until a subchapter on chronic toxicity testing within the "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18) becomes effective, tests shall be conducted in conformance with the interim methodologies as designated herein. The laboratory performing the testing shall be within the existing acute toxicity testing laboratory certification program established under N.J.A.C. 7:18-6, as required by N.J.A.C. 7:9-4.5(c)5.

Testing shall be in conformance with the subchapter on chronic toxicity testing within the "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18) when such regulations become effective. The laboratory performing the toxicity testing shall be within the chronic toxicity testing laboratory certification program to be established under that subchapter when it becomes effective.

These interim methods are incorporated into discharge permits as enforceable permit conditions. Each discharge permit will specify in Part IV of the permit the test species specific methods from this document which will be required under the terms of the discharge permit. Therefore, each individual permittee affected by these permit conditions has the right to comment on the methods applicable to their specific discharge during the public comment period on each individual permit. Although the test species specific methods for each permit are determined on a case-by-case basis, the purpose of this methods document is to assure consistency among dischargers and to provide certified laboratories with information on the universe of tests to be utilized so that they can make the necessary preparations.

GENERAL CONDITIONS

LABORATORY SAFETY, GLASSWARE, ETC.

All safety procedures, glassware cleaning procedures, etc., shall be in conformance with "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 2nd edition", (USEPA 1989), "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms" (USEPA 1988), or "Regulations Governing Laboratory Certification and Standards of Performance" (N.J.A.C. 7:18).

TEST CONCENTRATIONS

All testing is to be performed at a minimum of five effluent concentrations plus a dilution water control. One effluent concentration shall be the chronic permit limitation unless the existing data for the discharge indicate that the NOEC is expected to be significantly less than the permit limit. An effort shall be made to bracket the anticipated NOEC/LOEC test result.

DILUTION WATER - MARINE AND ESTUARINE WATERS

A high quality natural water, such as the Manasquan River Inlet (collected at high tide), is strongly recommended as the dilution water source for chronic toxicity testing with marine and estuarine organisms. The use of the receiving water as the dilution water source is not required. Saline waters prepared with hypersaline brine and deionized water may also be used as the base dilution water. Hypersaline brines shall be prepared from a high quality natural seawater and shall not exceed a concentration of 100 ppt.

The standard test salinity shall be 25 ppt, except for Champia parvula, which shall be tested at 30 ppt. Since most effluents are freshwater based, in most cases it will be necessary to adjust the salinities of the test concentrations to the standard test salinity.

The use of artificial seawater, prepared using artificial sea salts, is permitted but not recommended, only for the sheepshead minnow test (USEPA 1988, Method 1004) and for the mysid shrimp test (USEPA 1988, Method 1007). The acceptable sea salts include FORTY FATHOMS and HW MARINEMIX, as per the EPA marine chronic methods document (USEPA 1988). Use of any other salt(s) will require the submission in advance of adequate documentation, including at a minimum adequate standard reference toxicant data to demonstrate the acceptability of the salt(s) for use in chronic toxicity testing. They must be approved by the Department prior to the use.

Unless artificial seawater is to be used as the dilution water, hypersaline brine, concentrated to no more than 100 ppt, shall be the primary means of adjusting the test concentrations' salinities. In any test concentration, if the standard test salinity cannot be attained using 100 ppt hypersaline brine, the following procedure shall be used. This procedure shall not apply for any chronic toxicity testing using Champia parvula as the test organism.

1. Hypersaline brine, 100 ppt, shall be used to adjust the salinities of all test concentrations up to the standard test salinity, or the highest salinity attainable.

2. In those test concentrations where the standard test salinity cannot be attained using 100 ppt hypersaline brine, the salinity shall be brought up to the maximum attainable salinity using 100 ppt. hypersaline brine and shall then be adjusted above that salinity using artificial sea salts. Restrictions on the type of artificial sea salts as discussed above also apply.

3. A control prepared with hypersaline brine shall be included. An additional control prepared with artificial sea salts is recommended if sea salts are utilized as per paragraph 2, above.

The type of a dilution water for a permittee may not be changed without the prior approval of the Department.

Special attention should be given to the presence of required micronutrients in waters to be used for crustaceans. Refer to the specific test methodologies for more details.

If any distilled or deionized water is used, it should be prepared with Millipore Super Q^{R} or equivalent.

DILUTION WATER - FRESH WATERS

A high quality natural water, such as Round Valley Reservoir (if access is allowed) or Lake Hopatcong, is strongly recommended as the dilution water source for chronic toxicity testing with freshwater organisms. It is not required to perform the toxicity testing with the receiving water as dilution water. Tests performed with a reconstituted water or up to 20% Diluted Mineral Water (DMW) as dilution water are acceptable. The hardness of the dilution water must be within 10% of the hardness of the receiving water or 50 mg/L as $CaCO_3$, whichever is greater. The source of a dilution water for a permittee may not be changed without the prior approval of the Department. Reconstituted water and DMW should be prepared with Millipore Super Q^R or equivalent.

Special attention should be given to the presence of required micronutrients in waters to be used for crustaceans. Refer to the specific test methodologies for more details.

EFFLUENT SAMPLE COLLECTION

Effluent samples shall be representative of the discharge being regulated. For each discharge serial number (DSN), the effluent sampling location shall be the same as that specified in the NJPDES permit for other sampling parameters unless an alternate sampling point is specified in the NJPDES discharge permit. For industrial dischargers with a combined process/sanitary waste stream, effluent sampling shall be after chlorination, unless otherwise designated in the permit.

For continuous discharges, effluent sampling shall consist of 24 hour composite samples consisting either of equal volumes taken once every hour or of a flow-proportionate composite sample, unless otherwise approved by the Department. Effluent holding times and test solution renewal shall be consistent with the test organism specific methods in USEPA 1988 and 1989. For all other types of discharges, effluent sampling shall be conducted according to specifications contained within the discharge permit, or otherwise specified by the Department.

Except for filtration through a 2 mm or larger screen or an adjustment to the standard test salinity, no other adjustments to the effluent sample shall be made without prior written approval by the Department.

PHYSICAL CHEMICAL MEASUREMENTS

At a minimum, the physical chemical measurements must be consistant with the referenced test methodology (USEPA 1988, 1989).

The photoperiods should be phased in and out over a period of thirty (30) minutes for each transition period.

STATISTICS

Statistical analysis should follow the protocols in USEPA (1988, 1989) to evaluate adverse effects. Generally, a significance level of 0.05 will be utilized to evaluate such effects.

A dilution factor of 0.3 or 0.5 can be used. However, the Department recommends the use of the 0.5 dilution factor due to the increased test precision. Note that this may require more than five dilutions to cover the entire range of effluent concentrations.

If separate NOEC's can be calculated from multiple test end-points, as for example a reproductive end-point and a growth end-point, the most sensitive end-point will be used to determine permit compliance.

NOTE: Use of nonparametric statistical analyses requires a minimum of four (4) replicates per test concentration. If the data for any particular test is not conducive to parametric analyses and if less than four (4) replicates were included, the test may not be acceptable to the Department.

STANDARD REFERENCE TOXICANT TESTING

All chronic testing shall be accompanied by testing with a standard reference toxicant as a part of the each laboratory's internal quality control program. Such a testing program should be consistent with the quality assurance/quality control protocols described in the USEPA chronic testing manuals for freshwater organisms and for marine and estuarine organisms (USEPA 1989, 1989). Laboratories may utilize the standard referance toxicant of their choice.

At a minimum, this testing should include an initial series of at least five reference toxicant tests for each test species method. This testing should be completed prior to the initiation of any chronic effluent toxicity testing for each test species method. The laboratory should forward two copies of the initial testing, including control charts, the name of the standard reference toxicant utilized, the supplier, and appropriate chemical analysis of the toxicant, to the following address:

Municipal/Industrial Biomonitoring Programs
Wastewater Facilities Management Element
Division of Water Resources
CN-029
Trenton, NJ 08625-029

Subsequent testing should include testing of each batch of organisms obtained from a supplier and/or monthly testing of organisms cultured by the laboratory. Control charts should be maintained by the laboratory. Two copies of the control charts are to be forwarded annually to the Biomonitoring Programs at the above address. Results of appropriate chemical analyses of each lot of standard reference toxicant utilized must be included.

If standard reference toxicant tests fall outside the expected range of the control chart at a frequency greater than one in any twenty tests, a report shall be forwarded to the Biomonitoring Programs at the address above. This report shall include the identified problem which caused the value to fall outside the expected range and the corrective actions that have been taken by the laboratory. The Department may not accept or may require repeat testing for any required toxicity testing that may be affected by such an occurance.

METHODS SPECIFICATIONS

SUMMARY OF TEST CONDITIONS FOR THE FATHEAD MINNOW (*PIMEPHALES PROMELAS*) LARVAL SURVIVAL AND GROWTH TEST

1.	Test Type:	Static Renewal
2.	Test Duration:	7 days
3.	Renewal of Test Solution:	Daily
4.	Age of Test Organisms:	Newly hatched larvae (< 24 hours old). Testing with organisms up to 48 hours is allowed if they are all within one age group
5.	Dilution Factor:	0.3 or 0.5
6.	Number of Test Concentrations:	minimum 5 plus a control (a second control is optional when a dilution water other than the culture water is used)
7.	Number of Replicates per Each Concentration & Control:	4 (minimum of 3)
8.	Number of Larvae per Replicate:	15 (minimum of 10)
9.	Test Chamber Size:	500 ml recommended (covered)
10.	Test Solution Volume:	minimum 250 ml/chamber
11.	Loading Factor:	20 ml/organism
12.	Test Dilution Water:	natural water (60 micron mesh filtered), reconstituted water or up to 20% diluted mineral water (DMW). Reconstituted and DMW waters should be prepared with Millipore Super-Q^{R} or equivalant water. Aerate a minimum of 24 hours.
13.	Test Temperature:	25 ± 1° C
14.	Aeration:	none, unless the DO concentration falls below 40% saturation then all

		replicates. Rate should be less than 100 bubbles/min.
15.	Feeding Regime:	Feed 0.1 ml newly hatched brine shrimp naupli twice daily, 6 hr. between feedings (at the beginning of the work day at time of renewal and at the end of the work day). No feeding day 7. Sufficient naupli should be added to produce an excess.
16.	Photoperiod:	16 hr. light, 8 hr. darkness. 30 min. phase in and phase out recommended.
17.	Light Intensity:	Ambient laboratory levels (10-20 uE/m2/s or 50-100 ft-c)
18.	Cleaning:	Siphon daily, immediately before test solution renewal
19.	Effects Measured:	Survival and growth (dry weight)
20.	Test Acceptability:	≥80% control survival, ave. dry weight of surviving controls ≥ 0.25 mg
21.	Weighing/Drying Proceedures:	Immediately prepare for drying and weighing or preserve in 70% ethanol to dry and weigh at a later date. Dry at 100°C for a min. 2 hrs or until constant weight is achieved.
22.	Other Test Specifications in:	USEPA, 1989. Method 1000.0

SUMMARY OF TEST CONDITIONS FOR CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1.	Test type:	Static renewal
2.	Test duration:	3 broods (see 19)
3.	Temperature (°C):	25 + 1°C
4.	Light quality:	Ambient laboratory illumination
5.	Light intensity:	10-20 uE/m^2/s, or 50-100 ft-c (ambient laboratory levels). Caution should be taken to avoid excessive photosynthetically mediated elevations in pH.
6.	Photoperiod:	16 h light, 8 h dark
7.	Test chamber size:	30 ml recommended (covered)
8.	Test solution volume:	15 ml recommended. Test chambers should contain sufficient test solution to provide adequate surface area to maintain dissolved oxygen concentrations at or above 40 percent saturation
9.	Loading factor:	Minimum 15 ml/animal
10.	Renewal of test solutions:	Daily
11.	Age of test organisms:	Less than 24 h; and all released within a 8-h period
12.	Number of neonates per replicates:	Maximum of 1
13.	Number of replicates per each concentration and control:	Minimum of 10
14.	Number of test concentrations:	Minimum of 5 effluent concentrations and a control. (A second control is optional when a dilution water other than the culture water is used.)

15.	Feeding regime:	Diet must include an algal component. USEPA (1989) recommends feeding 0.1ml/15ml each of YTC (yeast, trout chow and Cerophyl) and Selenastrum capricornatum suspension per exposure chamber daily. Alternatives include algal diets of: 1. Ankistrodesmus convolutus and Nitzschia frustulum, and 2. A. convolutus, Chlamydomonas reinhardti and N. frustulum (Cowgill et al., 1985, 1988; Keating and Dagbusan, 1986). Algal feeding rates and other algal diets must be approved prior to use.
16.	Aeration:	None.
17.	Dilution water:	Natural water (60um mesh filtered), reconstituted water, or up to 20% diluted mineral water (DMW). Reconstituted and DMW waters should be prepared with Millipore Super Q^R or equivalent. Addition of 5 ug/l selenium (2 ug/l selenium with natural water) and 1 ug/l vitamin B12 is recommended (Keating and Dagbusan, 1984; Keating, 1985 1988). Aerated prior to the test for a minimum of 24 hours, but not supersaturated.
18.	Dilution factor:	0.3 or 0.5
19.	Test duration:	Until 60% of control females have three broods, up to a maximum of eight days.
20.	End points:	Survival and reproduction
21.	Test acceptability:	80% or greater survival and an average of 15 or more young/surviving female in the controls. At least 60% of surviving females in the controls produced their third brood within eight days. No ephippa produced in the controls. The number of males in the controls and test concentrations should be minimal and not influence the determination of the NOEC and LOEC.
22.	Other test specifications in:	USEPA, 1989. Method 1002.0

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SUMMARY OF TEST CONDITIONS FOR ALGAL (SELENASTRUM CAPRICORNUTUM) GROWTH TEST

1. Test Type:	Static, Non Renewal
2. Test Duration:	96 hours
3. Age of Test Organisms at Test Start:	4 to 7 days
4. Dilution Factor:	0.3 or 0.5
5. Number of Test Concentrations:	Minimum of 5 plus a control (A second control is optional when a dilution water other than the algal culture medium is used).
6. Number of Replicates per Each Concentration and Control:	4 (Minimum of 3)
7. Initial Cell Density per Replicate:	10,000 cells/ml
8. Test Chamber Size:	125 ml or 250 ml chamber recommended (covered)
9. Test Solution Volume:	50 ml or 100 ml recommended
10. Dilution Water:	Algal culture medium or filtered natural surface waters using a 0.45 um pore diameter filter, followed by addition of nutrient solutions (USEPA 1989, Method 1003, Table 1). The use of EDTA or other nutrient solutions is not recommended.
11. Reagent Water:	Carbon filtered distilled or deionized water which does not contain substances which are toxic to the test organism. A water purification system may be used to generate reagent water (ie. Millipore Super Q^{R} or equivalent).
12. Test Temperature:	$25^{\circ} \pm 1^{\circ}C$
13. Photoperiod:	Continuous illumination

14. Light Quality:	"Cool White" Fluorescent lighting
15. Light Intensity:	86±8.6 uE/m^2/s (400±40ft-c)
16. Shaking Rate:	100 cpm continuous or twice daily by hand
17. Effects Measured:	Growth (cell counts, chlorophyll content, fluorescence, absorbance, biomass)
	The algae in the test solutions must be checked under a microscope to detect abnormalities in cell size or shape.
	Algal growth determined daily
18. Test Acceptability:	Algal density ≥2 x 10^5 cells/ml in the controls (without EDTA). Variability of controls should not exceed 20 percent.
19. Other Test Specifications in:	USEPA, 1989. Method 1003.

SUMMARY OF TEST CONDITIONS FOR SHEEPSHEAD MINNOW (CYPRINODON VARIEGATUS) LARVAL SURVIVAL AND GROWTH TEST

1.	Test Type:	Static Renewal
2.	Test Duration:	7 days
3.	Renewal of Test Solutions:	Daily
4.	Age of Test Organisms at Test Start:	Newly Hatched Larvae. (24 hrs old). Testing with organisms up to 48 hrs old is permitted if they are all within one age group.
5.	Dilution Factor:	0.3 or 0.5
6.	Number of Test Concentrations:	Minimum of 5 plus a control (a second reference water control is optional when a dilution water other than the culture water is used)
7.	Number of Replicates per Each Concentration and Control:	Minimum of 3
8.	Number of Organisms per Replicate:	Minimum of 10
9.	Test Chamber Size:	Minimum of 600 mL chamber (covered)
10.	Test Solution Volume:	Minimum of 500 mL/replicate
11.	Loading Factor:	Minimum 50 mL/larvae
12.	Dilution Water:	Natural sea water or hypersaline brine

13.	Salinity of Test Concentrations:	25 ppt +/- 2 ppt (varying not more than 2 ppt among replicate chambers each day)
14.	Adjustment of Salinity of Test Concentrations:	Hypersaline brine to 75% effluent. Acceptable artificial sea salts above 75% effluent.
15.	Test Temperature:	25 +/- 2°C
16.	Aeration:	None unless the Dissolved Oxygen falls below 60% saturation, then all chambers. Rate less than 100 bubbles/min
17.	Food Source:	24 hour post hatch Artemia nauplii. (Other supplements or variations approved prior to use.)
18.	Feeding Regime:	Days 0-2: feed once per day 0.1 g wet weight Artemia nauplii per replicate. Days 3-6: feed once per day 0.15 g wet weight Artemia nauplii per replicate.
19.	Photoperiod:	16 Light:8 Dark
20.	Effects Measured:	Survival and Growth
21.	Weighing/drying Procedures:	Immediately prepare for drying and weighing or preserve in formalin or ethanol to dry and weigh at later date.
22.	Test Acceptability:	80% survival in controls and an average dry weight of ≥ 0.60 mg (unpreserved larvae) or 0.50 mg (preserved larvae)
23.	Other test specifications available in:	USEPA 1988, Method 1004

SUMMARY OF TEST CONDITIONS FOR INLAND SILVERSIDE (MENIDIA BERYLLINA) LARVAL SURVIVAL AND GROWTH TEST

1.	Test Type:	Static Renewal
2.	Test Duration:	7 days
3.	Renewal of Test Solutions:	Daily
4.	Age of Test Organisms at Test Start:	7-11 days post hatch Larvae
5.	Dilution Factor:	0.3 or 0.5
6.	Number of Test Concentrations:	Minimum of 5 plus a control (a second reference water control is optional when a dilution water other than the culture water is used)
7.	Number of Replicates per Each Concentration and Control:	Minimum of 3
8.	Number of Organisms per Replicate:	Minimum of 10
9.	Test Chamber Size:	Minimum of 600 mL chamber (covered)
10.	Test Solution Volume:	Minimum of 500 mL/replicate
11.	Loading Factor:	Minimum 50 mL/larvae
12.	Dilution Water:	Natural sea water or hypersaline brine
13.	Salinity of Test Concentrations:	25 ppt +/- 2 ppt (varying not more than 2 ppt among replicate chambers each day)

14.	Adjustment of Salinity of Test Concentrations:	Hypersaline brine to 75% effluent. Acceptable artificial sea salts above 75% effluent.
15.	Test Temperature:	25 +/- 2°C
16.	Aeration:	None unless the Dissolved Oxygen falls below 60% saturation, then all chambers. Rate less than 100 bubbles/min
17.	Food Source:	24 hour post hatch Artemia nauplii. (Other supplements or variations approved prior to use.)
18.	Feeding Regime:	Days 0-2: feed once per day 0.1 g wet weight Artemia nauplii per replicate. Days 3-6: feed once per day 0.15 g wet weight Artemia nauplii per replicate.
19.	Photoperiod:	16 Light:8 Dark
20.	Effects Measured:	Survival and Growth
21.	Weighing/drying Procedures:	Immediately prepare for drying and weighing or preserve in formalin or ethanol to dry and weigh at later date.
22.	Test Acceptability:	80% survival in controls and an average dry weight of ≥ 0.50 mg (unpreserved larvae) or 0.43 mg (preserved larvae)
23.	Other test specifications available in:	USEPA 1988, Method 1006

SUMMARY OF TEST CONDITIONS FOR MYSID (*MYSIDOPSIS BAHIA*) SURVIVAL, GROWTH, AND FECUNDITY TEST

1. Test Type:	Static Renewal
2. Test duration:	7 days
3. Renewal of Test Solutions:	Daily
4. Age of Test Organisms at Test Start:	7 days; 8 days maximum (all released within 24 hours from a single source).
5. Dilution Factor:	0.3 or 0.5
6. Number of Test Concentrations:	Minimum of 5 plus a control (a second control is optional when a dilution water other than the culture water is used).
7. Number of Replicates per Each Concentration and Control:	Minimum of 5 recommended
8. Number of Organisms per Replicate:	Minimum of 10 recommended
9. Test Chamber Size:	Minimum of 500 ml recommended (covered)
10. Test Solution Volume:	Minimum of 400 ml recommended
11. Dilution Water:	Natural Sea Water or Hypersaline Brine
12. Salinity of Test Concentrations:	25 ppt $\pm$ 2 ppt (varying not more than 2 ppt among replicates each day)
13. Adjustment of Salinity of Test Concentrations:	Hypersaline Brine to 75 percent effluent. Artificial sea salts acceptable above 75 percent effluent.
14. Test Temperature:	26°- 27°C recommended

15. Aeration:	None unless the Dissolved Oxygen falls below 60% saturation, then all chambers.
16. Food Source:	24 hour post hatch Artemia naupli (other supplements or variations should be approved prior to use).
17. Feeding Regime:	150 naupli per mysid (approximately 0.1 ml of concentrated naupli) - half after test solution renewal and half at 8 - 12 hours.
18. Photoperiod:	16 h light, 8 h dark
19. Light Intensity:	50-100 ft-c
20. Effects Measured:	Survival, Growth and Fecundity
21. Weighing/Drying Procedures:	Animals examined within 12 hours of test termination. Pieces of aluminum foil or small aluminum foil weighing boats less than 10 mg in weight.
22. Physical/Chemical Measurements (In additon ot those specified in the General Conditions Section):	Ammonia, Nitrite and Nitrate shall be measured in the controls at the test beginning.
23. Recommended Culture Water Specifications (Ward, 1989, 1989b):	Salinity = 25 ppt Temperature = 25 degrees pH = 7.8 - 8.2 SU Dissolved Oxygen = 6.5 - 7.1 mg/l Ammonia = $\leq$0.05 mg/l Nitrite = $\leq$0.05 mg/l Nitrate = $\leq$20 mg/l Alkalinity = 45 - 120 mg/l
24. Test Acceptability:	$\geq$80% control survival, an average weight of $\geq$0.2 mg per mysid in the controls and egg production by 50 percent of the control females.
25. Other Test Specifications in:	USEPA, 1988. Method 1007.

SUMMARY OF TEST CONDITIONS FOR *CHAMPIA PARVULA* SEXUAL REPRODUCTION TEST

1.	Test type:	Static, non-renewal
2.	Test duration:	2-day exposure to effluent, followed by 5- to 7-day recovery period for females only in control medium for cystocarp development
3.	Test solution volume:	100 mL
4.	Dilution water:	30 ppt salinity natural seawater, or a combination of 50% - 30 ppt salinity natural seawater and 50% - 30 ppt salinity artificial seawater as per USEPA (1988), method 1009.
5.	Dilution factor:	0.3 or 0.5
6.	Number of test concentrations:	At least 5 and a control, the concentration of effluent used in this test is limited to a maximum of 50%.
7.	Number of replicates per each concentration and control:	4 (minimum of 3)
8.	Number of organisms per replicate:	5 female branch tips approximately 1cm in length and 1 male plant approximately 2cm in length (visibly producing spermatia).
9.	Salinity:	30 ppt $\pm$ 2 ppt
10.	Temperature:	22 - 24^{o}C
11.	Photoperiod:	16 h light, 8 h dark
12.	Light intensity:	100 uE/m^{2}/s (500 ft-c)
13.	Light source:	Cool-white fluorescent lights
14.	Test chamber:	200 mL polystyrene cups (covered), or 250 mL Erlenmeyer flasks (recommended)
15.	Aeration:	None during exposure period; chambers are either shaken at 100 rpm on a rotary shaker or handswirled twice a day.
16.	Effects measured:	Significant reduction in the number of cystocarps formed in test concentrations compared to controls.

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17.	Test acceptability:	80% survival in the controls (generally there is no control mortality), controls shall average 10 cystocarps or more per plant, plants in the control and lower test concentrations shall not fragment so that individual plants cannot be identified.
18.	Other test specifications in:	USEPA, 1988. Method 1009.

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TERATOGENICITY ENDPOINTS

If for any reason the Department has concerns regarding the teratogenicity of a particular effluent to aquatic life, in addition to the methods contained in the Methods Specifications section, the following methods may be used:

Fathead Minnow (Pimephales promelas) Embryo-larval Survival and Teratogenicity Definitive Test, Method 1001.0. (USEPA 1989).

Sheepshead Minnow (Cyprinodon variegatus) Embryo-larval Survival and Teratogenicity Definitive Test, Method 1005. (USEPA 1988).

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7. USEPA. 1988. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. May 1988. 417 p.

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Background Information

1. Outfall(001) will discharge to the Peach Island Creek classified as SE2 waters.

2. Data from the September 19, 1988 Report "Remedial Investigation, SCP Carlstadt" prepared by Dames & Moore was used to determine the extent of contamination which may be present in outfall 001. The following information was extracted from the Report and used to characterize the contamination which may be present in outfall 001:

1. Organic and Inorganic Chemical Copmpounds detected at the SCP Site - Table 2

2. Water Table Aquifer Samples - Table 21 and 22.

3. Till Aquifer Samples - Table 21 and 22

4. Surface Water Samples - Table 23,24,25 and Figure 52,53,54,55.

This data may or may not be representative of the contamination in outfall 001 since the data available is from 1987. Only the information available, as listed above, was used to characterize this discharge and the instream background levels.

STATEMENT OF BASIS

Whole effluent toxicity limitation

Outfall 001

The water quality based acute and chronic toxicity limitations were calculated in accordance with N.J.A.C. 7:5-4.6(c)5 using a MA7CD10 flow of 0.03 cfs(USGS personal communication) and an effluent flow of 0.072 MGD reported on the August 2, 1989 memorandum from the Division of Hazardous Waste Management.

In accordance with the Departments "Interim Policy on Permittees Receiving Chronic Limits" (dated October 4, 1989), the more stringent of the two limitations (acute or chronic) calculated for the outfall, is selected as the toxicity limitation. Therefore, the chronic toxicity limitation of an NOEC $\geq$79% is selected as the toxicity limitation for this discharge.

Multi-species testing requirements for chronic toxicity testing are imposed in accordance with N.J.A.C. 7:9-4.5 (f)1.i. and recommendatios in the Technical Support Document for Water Quality - based Toxics Control (USEPA 1985; EPA-440/4-85-032).

The initial increased testing frequencies are included to establish an adequate database for toxicity in order to determine if the discharge is in consistent compliance with the established effluent limitations, in accordance with the N.J.A.C. 7:14A-10.3(a)16. The requirement for cessation of discharge (should the disacharge not meet its toxicity limitation) is in accordance with N.J.A.C 7:14A-2.8(d) since new sources do not qualify for compliance schedules and with N.J.A.C. 7:14A-2.5(a)6 which states that "The permittee shall take corrective action including ceasing discharge to mitigate the effects of violating a NJPDES permit." Furthermore, the impact to the groundwater cleanup, caused by the temporary cessation of discharge to surface water, should be less severe than if the discharge to surface water was continued in violation of effluent limitations.

Chemical Specific Effluent Limitations

Outfall 001

Technology based limitations were considered based on the following documents:

1. Guidance for BAT-Equivalent Control of Selected Toxic Pollutants, James W. Patterson, Ph.D. (May 1981).

2. Organic Chemicals and Plastics and Synthetic Fibers Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards; Final Rule, 40 CFR Parts 414 and 416 (November 5, 1987).

3. USEPA WERL Treatability Database.

Water Quality-Based Effluent Limitations (WQBEL) were calculated as follows. The procedure for determining Waste Load Allocation's (WLA's), calculating Long Term Averages (LTA's), and translating the LTA'S into permit limits are consistent with the EPA "Permit Writer's Guide to Water-Quality-Based Permitting for Toxic Pollutants" (EPA 440/4-87-005 July 1987) which is based on the EPA "Technical Support Document for Water Quality-Based Toxics Control" (EPA 440/4-85-032 September 1985). A reserve capacity is maintained pursuant to N.J.A.C. 7:9-4.6(c)4.i. when calculating WLA's. Assuming the discharge will be via a submerged pipe to ensure good mixing, site specific WLA's were calculated using the N.J. Surface Water Quality Criteria for saline water. A minimum average 7 consecutive day flow with a statistical recurrence interval of 10 years (MA7CD10) of 0.03 cfs was used, for the proposed discharge to Peach Island Creek. A steady state model assuming the pollutant behaves as a conservative substance was used to calculate the site specific WLA's. An effluent performance level (LTA) necessary to comply with the WLA is back-calculated. The most stringent LTA was used to calculate the Daily Maximum and Monthly Average effluent limitations.

Limitations are expressed in terms of both mass and concentration. In each case the proposed limitations are based on the more stringent of the WQBEL or technology based limitations.

The limitation for Petroleum Hydrocarbons is in accordance with the New Jersey Oil and Grease effluent limitations, N.J.A.C. 7:14A-14.1 et. seq.

The limitation for Total Organic Carbon is in accordance with the Wastewater Discharge Requirements, N.J.A.C. 7:9-5.5 and 7:9-5.8 for the Hackensack River basin.

The requirement for cessation of a discharge (should the discharge not meet the effluent limitations) is in accordance with N.J.A.C. 7:14A-2.8(d) since new sources do not qualify for compliance schedules and with N.J.A.C. 7:14A-2.5(a)6 which states that "The permittee shall take corrective action including ceasing discharge to mitigate the effects of violating a NJPDES permit." Furthermore, the impact to the SCP site, caused by the temporary cessation of discharge to surface water, should be less severe than if the discharge to surface water was continued in violation of effluent limitations.

Whole Effluent Toxicity Testing Requirements

Chronic Toxicity Testing

1. Test Species and Methodology

   a. Chronic toxicity tests shall be conducted concurrently, with the split samples, using the following test species and test durations:

      1. A choice of one of the following two fish species: Sheepshead minnow (Cyprinodon variegatus), 7 day larval survival and reproduction test, or

         Inland Silverside (Menidia beryllina), 7 day larval survival and reproduction test,and

      2. Mysid shrimp (Mysidopsis bahia), 7 day survival, growth, and fecundity test.

      Such testing will determine if appropriately selected effluent concentrations will affect the survival, growth and/or reproduction of the most sensitive to the discharge.

b. Test results shall be expressed as an NOEC (No Observable Effect Concentration) and LOEC (Lowest Observable Effect Concentration). Compliance with the chronic limit shall be evaluated using the most sensitive endpoint measured by the test.

c. Testing shall be in conformance with the guidelines contained in the "Interim Chronic Toxicity Testing Methodologies for Use in the NJPDES Permit Program, Version 1.0, February 1989" (attached). The laboratory performing the toxicity testing shall be within the existing acute toxicity testing laboratory certification program established under N.J.A.C. 7:18-6.

MONITORING AND REPORTING REQUIREMENTS

Monitoring Frequency for all Parameters

1. Chronic toxicity testing shall initially be conducted on representative effluent samples on a biweekly basis for two months. All other parameters shall be monitored at the frequencies specified in Table II. If the test results show that the effluent is consistently meeting the specified chronic toxicity limitation, the discharge may continue (provided it also meets any other specified limits). If at any time the effluent does not meet the specified chronic toxicity or chemical specific limitations, the discharge shall cease until it is determined that the effluent can consistently meet the specified limits.

2. Once it has been demonstrated that the effluent from the site can consistently meet the specified chronic toxicity limit, the discharge shall be monitored at a quarterly frequency using the most sensitive chronic species/test (as determined during the first two months of testing). If at any time the discharge from the site does not meet its specified effluent limitations, that discharge shall cease until it is determined that the effluent can again consistently meet the specified chronic toxicity and/or chemical specific limitations.

Testing Requirements

All analyses shall be performed in accordance with N.J.A.C. 7:14A-2.5(a)12.ii.

Reporting Requirements

1. The Bureau of Industrial Discharge Permits shall be notified one month prior to commencement of discharge of treated groundwater from the SCP Carlstadt site outfall DSN001.

2. All test results shall be summarized and reported monthly (starting from the first month in which the discharge occurs) on the Discharge Monitoring Reports (DMR's), a copy of which is attached.

3. All DMR's shall be submitted within 25 days of the start of the following month. Contact Surya Shah of the Bureau of Industrial Discharge Permits at 2-4860 for directions on the submittal of DMR's.

4. Chronic toxicity test results shall also be reported on the "NJPDES Biomonitoring Report Form - Chronic Bioassays," (copies of which are provided to certified laboratories).

PERMIT EQUIVALENCY SUMMARY TABLE I

OUTFALL 001

PARAMETER	WORST CASE INFLUENT DATA	WATER QUALITY BASED LIMITS		TECHNOLOGY BASED LIMITS			MINIMUM DETECTION LEVEL	EPA METHOD NUMBER	PERMIT EQUIVALENT EFFLUENT LIMIT	
All values are in ug/l unless otherwise stated		DAY MAX	MON AVG	DAY MAX	MON AVG		(ug/l)		DAY MAX	MON AVG
CONVENTIONALS & NON-CONVENTIONALS										
Flow (GPD)	72,000	-	-	-	-		-	-	Report	
TOC(mg/l)	-	-		40	-	(2)	-		40	-
TSS(mg/l)	-	-	-	50	-	(1)	-		50	-
pH(S.U.)	-	-	-	6.5-8.5		(6)	-		6.5-8.5	
Petroleum Hydrocarbons(mg/l)	-	-	-	15	10	(3)	-		15	10
Cyanide,total	4,520	0.5	1.0	400	200	(4)	5.0	335.3	0.5	1.0
Chronic Toxicity	-	NOEC ≥ 79%		-	-		-	-	Min.NOEC ≥ 79%	
VOLATILE COMPOUNDS										
Benzene	7,270	-	-	134	57	(5)	4.4	624	134	57
Chlorobenzene	6,560	-	-	380	142	(5)	6.0	624	380	142
Chloroethane	2,420	-	-	295	110	(5)	0.52	601	295	110
Chloroform	614,000	-	-	325	111	(5)	1.6	624	325	111
1,1 Dichloroethane	11,700	-	-	59	22	(5)	4.7	624	59	22
1,2 Dichloroethane	473,000			574	180	(5)	2.8	624	574	180
1,1 Dichloroethylene	1,220	-	-	60	22	(5)	2.8	624	60	22
Ethylbenzene	3,900	-	-	380	142	(5)	7.2	624	380	142
Methylene Chloride	200,000	-	-	170	36	(5)	2.8	624	170	36
1,1,2,2-Tetrachloroethane	7,350	-	-	50	-	(7)	6.9	624	50	-
Tetrachloroethylene	24,500	-	-	164	52	(5)	4.1	624	164	52

PARAMETER	WORST CASE INFLUENT DATA	WATER QUALITY BASED LIMITS		TECHNOLOGY BASED LIMITS		MINIMUM DETECTION LEVEL	EPA METHOD NUMBER	PERMIT EQUIVALENT EFFLUENT LIMIT	
		DAY MAX	MON AVG	DAY MAX	MON AVG	(ug/l)		DAY MAX	MON AVG
VOLATILE COMPOUNDS									
Toluene	90,900	-	-	74	28 (5)	6.0	624	74	28
1,2-Trans-dichloro-ethylene	64,700	-	-	66	25 (5)	1.6	624	66	25
1,1,1-Trichloroethane	81,200	-	-	59	22 (5)	3.8	624	59	22
Trichloroethylene	161,000	-	-	69	26 (5)	1.9	624	69	26
Vinyl Chloride	7,290	-	-	172	97 (5)	0.18	601	172	97
Methyl Ethyl Ketone	2,000,000	-	-	2000	- (7)	-	-	2000	-
Xylenes, total	35,600	-	-	50	- (7)	-	-	50	-
ACID COMPOUNDS									
2-Chlorophenol	170	-	-	10	- (7)	3.3	625	10	-
2,4-Dichlorophenol	1,090	-	-	100	- (7)	2.7	625	100	-
2,4 Dimethylphenol	736	-	-	47	19 (5)	2.7	625	47	19
2-Nitrophenol	4	-	-	231	65 (5)	3.6	625	231	65
Phenol	17,100	-	-	47	19 (5)	1.5	625	47	19
BASE NEUTRAL COMPOUNDS									
Acenaphthene	40	-	-	47	19 (5)	1.9	625	47	19
Acenaphthylene	73	-	-	47	19 (5)	3.5	625	47	19
Anthracene	126	-	-	47	19 (5)	1.9	625	47	19
Benzo(a)pyrene	90	-	-	48	20 (5)	2.5	625	48	20
Benzo(b)fluoranthene	141	-	-	-	-	4.8	625	Controlled with Benzo(a)pyrene	
bis(2-Chloroethyl)ether	1,390	-	-	200	- (7)	5.7	625	200	-
bis(2-Ethyl hexyl)-phthalate	654	-	-	258	95 (5)	2.5	625	258	95
Butyl Benzyl phthalate	10.4	-	-	30	- (8)	2.5	625	30	-

PARAMETER	WORST CASE INFLUENT DATA	WATER QUALITY BASED LIMITS		TECHNOLOGY BASED LIMITS		MINIMUM DETECTION LEVEL	EPA METHOD NUMBER	PERMIT EQUIVALENT EFFLUENT LIMIT	
		DAY MAX	MON AVG	DAY MAX	MON AVG	(ug/l)		DAY MAX	MON AVG
BASE NEUTRAL COMPOUNDS									
2-Chloronaphthalene	18.9	-	-	57	- (8)	1.9	625	57	-
Chrysene	87	-	-	47	19 (5)	2.5	625	47	19
1,2-Dichlorobenzene	192	-	-	794	196 (5)	1.9	625	794	196
Diethyl phthalate	416	-	-	113	46 (5)	22.0	625	113	46
Dimethyl phthalate	316	-	-	47	19 (5)	1.6	625	47	19
Di-n-butyl phthalate	318	-	-	43	20 (5)	2.5	625	43	20
Fluoranthene	266	-	-	54	22 (5)	2.2	625	54	22
Fluorene	133	-	-	47	19 (5)	1.9	625	47	19
Indeno(1,2,3-c,d)pyrene	60	-	-	24	- (7)	3.7	625	24	-
Isophorone	8,450	-	-	85	- (7)	2.2	625	85	-
Naphthalene	1,220	-	-	47	19 (5)	1.6	625	47	19
Nitrobenzene	57,900	-	-	6402	2237 (5)	1.9	625	6402	2237
Phenanthrene	620	-	-	47	19 (5)	5.4	625	47	19
Pyrene	228	-	-	48	20 (5)	1.9	625	48	20
PESTICIDES & PCBs									
Beta-BHC	0.6	-	-	0.006	- (7)	0.006	608	0.006	-
4,4' -DDT	1.7	0.0008	0.0004	-	-	0.012	608	0.0008	0.0004
4,4' -DDE	.59	-	-	-	-	0.004	608	Controlled with DDT	
Endosulfan I	.3	0.0072	0.0036	-	-	0.014	608	0.0072	0.0036
Endrin	.7	0.002	0.001	-	-	0.006	608	0.002	0.001
Endrin Aldehyde	15.0	-	-	-	-	0.023	608	Controlled with Endrin	
PCB's	17	0.025	0.012	-	-	-	608	0.025	0.012

PARAMETER	WORST CASE INFLUENT DATA	WATER QUALITY BASED LIMITS		TECHNOLOGY BASED LIMITS		MINIMUM DETECTION LEVEL	EPA METHOD NUMBER	PERMIT EQUIVALENT EFFLUENT LIMIT	
		DAY MAX	MON AVG	DAY MAX	MON AVG	(ug/l)		DAY MAX	MON AVG
METALS									
Arsenic	1,600	62	31	400	200 (4)	1.0	206.2	62	31
Beryllium	1.3	-	-	3	- (8)	0.2	210.2	3	-
Cadmium	-	16	8	200	100 (4)	0.1	213.2	16	8
Chromium, total	420	-	-	1000	500 (4)	1.0	218.2	1000	500
Chromium, Hexavalent	-	-	-	100	50 (4)	5.0	218.5	100	50
Copper, total	60	ND	ND	800	400 (4)	1.0	220.2	ND	ND
Lead, total	-	10	5	300	150 (4)	1.0	239.2	10	5
Mercury	0.21	ND	ND	6	3 (4)	0.2	245.1	ND	ND
Nickel	150	ND	ND	1500	750 (4)	1.0	249.2	ND	ND
Silver	110	2.46	1.23	200	100 (4)	0.2	272.2	2.46	1.23
Zinc	690	ND	ND	1000	500 (4)	0.05	289.2	ND	ND

(1) Based on USEPA Effluent Limitations Guidelines for stormwater discharges.
(2) Based on minimum requirements for treatment of wastewater, N.J.A.C. 7:9-5.5 and 7:9-5.8.
(3) Based on Oil and Grease Effluent Limitations N.J.A.C. 7:14A-14.1 et seq.
(4) Based on "Guidance for BAT-Equivalent Control of Selected Toxic Pollutants", a report prepared by James W. Patterson, Ph. D., for USEPA, May 1981.
(5) Based on final USEPA Effluent Guidelines for the Organic Chemicals, Plastics and Synthetic Fibers (OCPSF) point source category for discharges that do not use end-of-pipe biological treatment.
(6) Based on HMDC District Zoning Regulations N.J.A.C. 19:4-6.14 (g).
(7) BPJ based on WERL treatability database.
(8) BPJ set at 3 times the highest observed influent data based on low levels observed.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - TABLE II

SCP CARLSTADT - OUTFALL 001

PARAMETER	PERMIT EQUIVALENT EFFLUENT LIMITATIONS		DISCHARGE COMPLIANCE LEVEL (1)	MONITORING REQUIREMENTS	
All values are in ug/l unless otherwise stated	Monthly Average	Daily Maximum		FREQUENCY	SAMPLE TYPE
CONVENTIONALS & NON-CONVENTIONALS					
Flow (GPD)	NL	NL	N/A	Continuous	
TOC(mg/l)	-	40	N/A	Weekly	Composite
TSS(mg/l)	-	50	N/A	Monthly	Composite
pH(S.U.)	6.5 Min.	8.5	N/A	Weekly	Grab
Petroleum Hydrocarbons(mg/l)	10	15 (2)	N/A	Weekly	Grab
Cyanide,total (lb/d)	0.5(.0003)	1.0(.0006)	5.0	Weekly	Grab
Chronic Toxicity	NOEC ≥ 79%	N/A		See Pages 3 and 4 of 13	
VOLATILE COMPOUNDS					
Benzene	57	134	N/A	2/month	Grab
Chlorobenzene	142	380	N/A	2/month	Grab
Chloroethane	110	295	N/A	2/month	Grab
Chloroform	111	325	N/A	2/month	Grab
1,1 Dichloroethane	22	59	N/A	2/month	Grab
1,2 Dichloroethane	180	574	N/A	2/month	Grab
1,1 Dichloroethylene	22	60	N/A	2/month	Grab
Ethylbenzene	142	380	N/A	2/month	Grab
Methylene Chloride	36	170	N/A	2/month	Grab
1,1,2,2-Tetrachloroethane	NL	50	N/A	2/month	Grab
Tetrachloroethylene	52	164	N/A	2/month	Grab

PARAMETER	PERMIT EQUIVALENT EFFLUENT LIMITATIONS		DISCHARGE COMPLIANCE LEVEL (1)	MONITORING REQUIREMENTS	
All values are in ug/l unless otherwise stated	Monthly Average	Daily Maximum		FREQUENCY	SAMPLE TYPE
VOLATILE COMPOUNDS					
Toluene	28	74	N/A	2/month	Grab
1,2-Trans-dichloro-ethylene	25	66	N/A	2/month	Grab
1,1,1-Trichloroethane	22	59	N/A	2/month	Grab
Trichloroethylene	26	69	N/A	2/month	Grab
Vinyl Chloride	97	172	N/A	2/month	Grab
Methyl Ethyl Ketone	NL	2000	N/A	2/month	Grab
Xylenes, total	NL	50	N/A	2/month	Grab
ACID COMPOUNDS					
2-Chlorophenol	NL	10	N/A	2/month	Grab
2,4-Dichlorophenol	NL	100	N/A	2/month	Grab
2,4 Dimethylphenol	19	47	N/A	2/month	Grab
2-Nitrophenol	65	231	N/A	2/month	Grab
Phenol	19	47	N/A	2/month	Grab
BASE NEUTRAL COMPOUNDS					
Acenaphthene	19	47	N/A	2/month	Grab
Acenaphthylene	19	47	N/A	2/month	Garb
Anthracene	19	47	N/A	2/month	Grab
Benzo(a)pyrene	20	48	N/A	2/month	Grab
bis(2-Chloroethyl)ether	NL	200	N/A	2/month	Grab
bis(2-Ethyl hexyl)-phthalate	95	258	N/A	2/month	Grab
Butyl Benzyl phthalate	NL	30	N/A	2/month	Grab

PARAMETER	PERMIT EQUIVALENT EFFLUENT LIMITATIONS		DISCHARGE COMPLIANCE LEVEL (1)	MONITORING REQUIREMENTS	
All values are in ug/l unless otherwise stated	Monthly Average	Daily Maximum		FREQUENCY	SAMPLE TYPE
BASE NEUTRAL COMPOUNDS					
2-Chloronaphthalene	NL	57	N/A	2/month	Grab
Chrysene	19	47	N/A	2/month	Grab
1,2-Dichlorobenzene	196	794	N/A	2/month	Grab
Diethyl phthalate	46	113	N/A	2/month	Grab
Dimethyl phthalate	19	47	N/A	2/month	Grab
Di-n-butyl phthalate	20	43	N/A	2/month	Grab
Fluoranthene	22	54	N/A	2/month	Grab
Fluorene	19	47	N/A	2/month	Grab
Indeno(1,2,3-c,d)pyrene	NL	24	N/A	2/month	Grab
Isophorone	NL	85	N/A	2/month	Grab
Naphthalene	19	47	N/A	2/month	Grab
Nitrobenzene	2237	6402	N/A	2/month	Grab
Phenanthrene	19	47	N/A	2/month	Grab
Pyrene	20	48	N/A	2/month	Grab
PESTICIDES & PCBs					
Beta-BHC	NL	0.006	0.006	2/month	Grab
4,4' -DDT (lb/d)	0.0004(2.4E-7)	0.0008(4.8E-7)	0.012	Weekly	Grab
Endosulfan I (lb/d)	0.0036(2.1E-6)	0.0072(4.2E-6)	0.014	Weekly	Grab
Endrin (lb/d)	0.001(6.0E-7)	0.002(1.2E-6)	0.006	Weekly	Grab
PCB's (lb/d)	0.012(7.2E-6)	0.025(1.5E-5)	-	Weekly	Grab

PARAMETER	PERMIT EQUIVALENT EFFLUENT LIMITATIONS		DISCHARGE COMPLIANCE LEVEL (1)	MONITORING REQUIREMENTS	
All values are in ug/l unless otherwise stated	Monthly Average	Daily Maximum		FREQUENCY	SAMPLE TYPE
METALS					
Arsenic (lb/d)	31(.0186)	62(.037)	N/A	Weekly	Composite
Beryllium	NL	3	N/A	Weekly	Composite
Cadmium (lb/d)	8(.0048)	16(.0096)	N/A	Weekly	Composite
Chromium,total	500	1000	N/A	2/month	Composite
Chromium, Hexavalent	50	100	N/A	2/month	Composite
Copper, total	ND	ND	1.0	Weekly	Composite
Lead, total (lb/d)	5(.003)	10(.006)	N/A	Weekly	Composite
Mercury	ND	ND	0.2	Weekly	Composite
Nickel	ND	ND	1.0	Weekly	Composite
Silver (lb/d)	1.23(.0007)	2.46(.0015)	N/A	Weekly	Composite
Zinc	ND	ND	0.05	Weekly	Composite

N/A - not applicable
NL - no limit, but monitoring and reporting required
NOEC - No Observable Efects Concentration
ND - nondetectible by the most sensitive analytical method available
(1) Where specified, the Discharge Compliance Level (DCL) shall be used for purposes of determining discharge compliance. When the average and maximum effluent limitations are less than the DCL, the discharge must be less than or equal to the DCL to be considered in compliance with both limitations. When only the average limitation is less than the DCL, the discharge wil be considered in compliance with both limitations if it is in compliance with the maximum effluent limitation.
(2) And no visible sheen.

Date _____

EFFLUENT LIMITS WORKSHEET

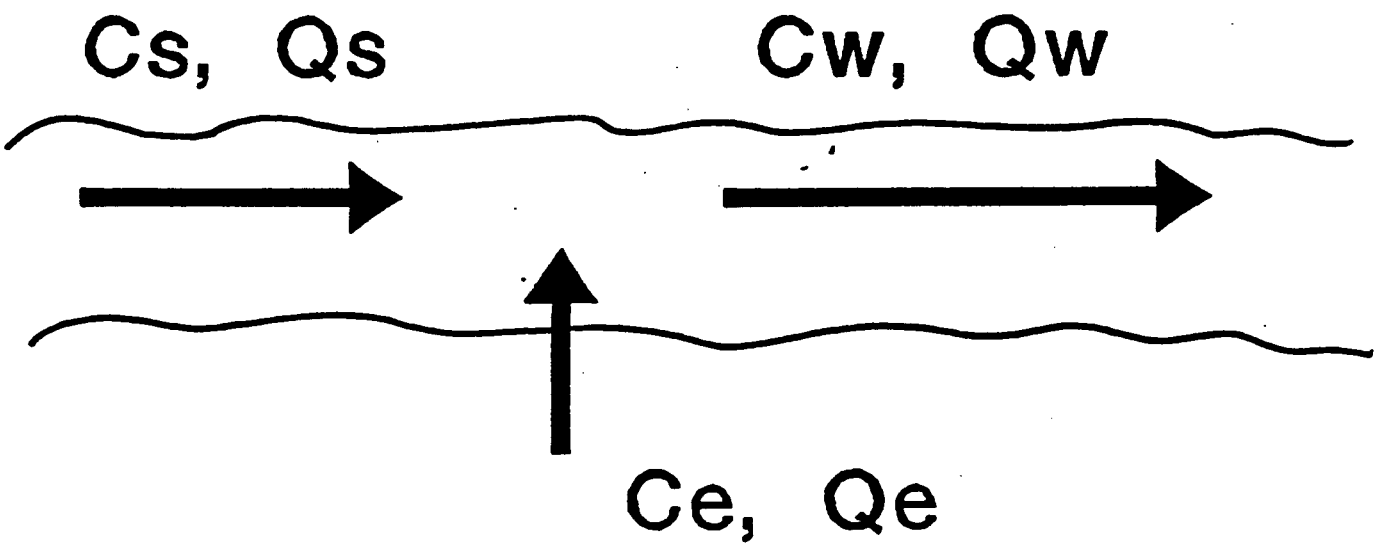
Facility: SCP Carlstadt NJ00 _____ Receiving Stream: Peach Island Creek MA7CD10: 0.03 cfs = 0.01935 MGD

PARAMETERS	Infl. Value	WATER QUALITY BASED CRITERIA				Back-ground Values	WASTE LOAD ALLOCATIONS				LONG TERM AVERAGES (LTA)				WQB Limits	
		NJWQS	Acute WQC	Chronic WQC	Human Health		NJWQS WLA	Acute WLA	Chronic WLA	H.H. WLA	NJWQS LTA	Acute LTA	Chronic LTA	H.H. LTA	Monthly Average	Daily Maximum
Arsenic^{+++}	-	-	69	36	-	0	-	70	36.5	-	-	23.73	19.84	-	30.79	61.78
Cadmium	-	-	43	9.3	-	0	-	43.3	9.37	-	-	14.69	5.09	-	7.89	15.84
Chromium^{+6}	-	-	1100	50	-	-	-	880	40	-	-	298	21.72	-	33.71	67.64
Copper	60	-	2.9	-	-	100	-	<0	-	-	-	<0	-	-	ND	ND
Lead	-	-	140	5.6	-	0	-	141.1	5.64	-	-	47.8	3.06	-	4.25	9.53
Mercury	0.21	-	2.1	0.025	-	4.8	-	<0	<0	-	-	<0	<0	-	ND	ND
Nickel	150	-	75	8.3	-	57	-	75.6	<0	-	-	25.63	<0	-	ND	ND
Selenium	-	-	300	71	-	0	-	302.3	71.6	-	-	102.5	38.88	-	60.34	121.1
Zinc	690	-	95	86	-	370	-	<0	<0	-	-	<0	<0	-	ND	ND
Silver	110	-	2.3	-	-	0	-	2.32	-	-	-	0.79	-	-	1.23	2.46
Cyanide,total	-	-	1	-	-	0	-	1.015	-	-	-	0.344	-	-	0.534	1.071
4,4 DDT	1.7	0.001	-	-	-	0	.001	-	-	-	.00027	-	-	-	.0004	.0008
Endrin	0.7	0.0023	-	-	-	0	.0023	-	-	-	.0006	-	-	-	.00093	.00187
PCB's	-	0.03	-	-	-	0	.03	-	-	-	.008	-	-	-	.012	.025
Endosulfan	.3	0.0087	-	-	-	0	.0087	-	-	-	.0023	-	-	-	.0036	.0072

COMMENTS: _____

003031

SIMPLE MASS BALANCE



Where:

Cs = Background Stream Concentration

Qs = Upstream streamflow

Qw = 7-day, 10-year Low Flow

Cw = Surface Water Quality Criteria

Qe = Effluent Flow Rate

Ce = Effluent Concentration

SIMPLE MASS BALANCE

Mass of Pollutant Upstream + Mass of Pollutant in Effluent
= Mass of Pollutant Downstream - Pollutant Reserve

Mass Effluent = Mass Downstream-Mass Upstream-Reserve

Mass in effluent (lb/day) = Wasteload Allocation (WLA)

Mass downstream (lb/day) = 8.34 * Qw(mgd) * Cw(mg/l)

Mass upstream (lb/day) = 8.34 * Qs(mgd) * Cs(mg/l)

Reserve (lb/day) = 0.2 * 8.34 * Qw(mgd) * Cw(mg/l)

WLA (lb/day) = 8.34 * (Qw*Cw - Qs*Cs - 0.2 * Qw*Cw)

= 8.34 * (0.8*Qw*Cw - Qs*Cs)

For Qw, Qs in cubic feet per second and Cw, Cs in ug/l:

WLA (lbs/day) = 0.00539 * (0.8*Qw*Cw - Qs*Cs)

SCP Carlstadt

Water Quality Based Effluent Limits

Waste Load Allocation (WLA) → Long Term Average (LTA) → Effluent Limit

$$WLA\ (lbs/day) = 8.34(Q_W C_W - Q_S C_S - 0.2 Q_W C_W)$$

$$= 8.34(0.8 Q_W C_W - Q_S C_S)$$

where $Q_W = Q_S + Q_e$

Q_e, Q_S and Q_W are in MGD, and C_e, C_S and C_W are in mg/l.

For Discharge to Peach Island Creek which is saline water with a stream classification of SE2 waters,

$Q_S = 0.01935$ MGD

$Q_e = 0.072$ MGD

ARSENIC

"Chronic"

$$WLA\ (lbs/day) = 8.34(.8 \times 0.09135 \times \frac{36}{1000} - .01935 \times$$

$$= 0.0219415$$

$$WLA\ (ug/l) = \frac{0.0219415 \times 1000}{8.34 \times .072}$$

$$= 36.5$$

003034

"Acute"

$$WLA\ (lb/day) = 8.34\left(.8 \times \frac{69}{1000} \times .09135\right) - .01935 \times 0$$

$$= 0.0420548$$

$$WLA\ (mg/l) = \frac{0.0420548 \times 1000}{8.34 \times .072}$$

$$= 70.03$$

Since chronic and acute criteria are available, I have to calculate LTA for both and choose the most stringent LTA of both and use that to calculate Effluent Limitations.

Chronic LTA = chronic WLA x 0.543
= 36.5 x .543
= 19.84 ug/l

Acute LTA = Acute WLA x 0.339
= 70 x .339
= 23.73 ug/l

Hence Chronic LTA is used to derive Effluent Limit.

Monthly Average = 19.84 x 1.552 (multiplier)
= 30.79 or say 31 ug/l

Daily Maximum = 19.84 x 3.114 (multiplier)
= 61.78 or say 62 ug/l

003035

4-4-DDT

$$WLA\ (lb/day) = 8.34\left(.8 \times \frac{.001}{1000} \times .09135 - .01935 \times 0\right)$$

$$= .0000006\ lb/day$$

$$WLA\ (ug/l) = \frac{.0000006 \times 1000}{8.34 \times .072}$$

$$= .001$$

For NJWQS, multiplier to calculate LTA is 0.266.

Therefore LTA = WLA x 0.266

= .001 x .266

= .00027

Effluent Limit:

Monthly Average = .00027 x 1.552

= 0.0004 ug/l

Daily Maximum = 0.00027 x 3.114

= 0.0008

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SEP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)
(2-16) PERMIT NUMBER
(17-19) 001 DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM				TO			
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Flow	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	Report	Report	MGD	N/A	N/A	N/A			1/1	Continuous
TOC	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	N/A	N/A		N/A	N/A	40	mg/l		1/7	Comp.
TSS	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	N/A	N/A		N/A	N/A	50	mg/l		1/30	Comp.
pH	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	N/A	N/A		6.5	N/A	8.5	S.U.		1/7	Grab
Petroleum Hydrocarbons	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	N/A	N/A		N/A	15	15	mg/l		1/7	Grab
Cyanide, total Effluent	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT				N/A	Report	5.0	ug/l		1/7	Grab
Cyanide, total See Comment Below	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT	0.0003	0.0006	lb/day	N/A	0.5	1.0	ug/l		1/7	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
0033	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)		AREA CODE / NUMBER	YEAR	MO	DAY
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT					

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

This parameter is for reporting purposes only and will not be used to determine discharge compliance.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlsbad
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

(2-16) PERMIT NUMBER	(17-19) DISCHARGE NUMBER
	001

MONITORING PERIOD

	YEAR (20-21)	MO (22-23)	DAY (24-25)		YEAR (26-27)	MO (28-29)	DAY (30-31)
FROM				TO			

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Benzene	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					57	134				
Chlorobenzene	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					142	380				
Chloroethane	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					110	295				
Chloroform	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					111	325				
1,1 Dichloro-ethane	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					22	59				
1,2 Dichloro-ethane	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					180	574				
1,1 Dichloro-ethylene	SAMPLE MEASUREMENT							ug/l		1/5	Grab
	PERMIT REQUIREMENT					22	60				

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

0038

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE | NUMBER

DATE: YEAR | MO | DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
	001

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM				TO			
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

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Ethylbenzene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					142	380	ug/l		1/5	Grab
Methylene Chloride	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					36	170	ug/l		1/5	Grab
1,1,2,2-Tetrachloroethane	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					Report	5.0	ug/l		1/5	Grab
Tetrachloroethylene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					52	164	ug/l		1/5	Grab
Toluene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					28	74	ug/l		1/5	Grab
1,2-Trans-Dichloroethylene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					25	66	ug/l		1/5	Grab
1,1,1 Trichloroethane	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					22	59	ug/l		1/5	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
0030	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. *(Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)*		AREA CODE / NUMBER	YEAR	MO	DAY
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT				

COMMENT AND EXPLANATION OF ANY VIOLATIONS (*Reference all attachments here*)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)
DISCHARGE NUMBER (17-19): 001

MONITORING PERIOD
FROM YEAR (20-21) MO (22-23) DAY (24-25) TO YEAR (26-27) MO (28-29) DAY (30-31)

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PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) / (54-61) AVERAGE	MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (46-53) MINIMUM	AVERAGE (54-61)	MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Trichloro-ethylene	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					26	69			1/15	Grab
Vinyl Chloride	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					97	172			1/15	Grab
Methyl Ethyl Ketone	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					Report	2000			1/15	Grab
Xylenes, total	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					Report	50			1/15	Grab
2-Chlorophenol	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					Report	10			1/15	Grab
2,4 Dichloro-phenol	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					Report	100			1/15	Grab
2,4 Dimethyl phenol	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					19	47			1/15	Grab

NAME & TITLE PRINCIPAL EXECUTIVE OFFICER
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE / NUMBER
DATE: YEAR / MO / DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
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	001

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2-Nitrophenol	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					65	231	ug/l		1/15	Grab
Phenol	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					19	47	ug/l		1/15	Grab
Acenaphthene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					19	47	ug/l		1/15	Grab
Acenaphthylene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					19	47	ug/l		1/15	Grab
Anthracene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					19	47	ug/l		1/15	Grab
Benzo(a) pyrene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					28	48	ug/l		1/15	Grab
[illegible] fluoranthene	SAMPLE MEASUREMENT							[illegible]			
	PERMIT REQUIREMENT									1/15	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
TYPED OR PRINTED	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

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PERMIT NUMBER (2-16)

DISCHARGE NUMBER (17-19): 001

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FROM YEAR (20-21)	MO (22-23)	DAY (24-25)	TO YEAR (26-27)	MO (28-29)	DAY (30-31)

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PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
bis(2-Chloroethyl) ether	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					Report	200	ug/l		1/15	Grab
bis (2-Ethyl hexyl) phthalate	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					95	258	ug/l		1/15	Grab
Butyl Benzyl Phthalate	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					Report	30	ug/l		1/15	Grab
2-Chloronaph-thalene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					Report	57	ug/l		1/15	Grab
Chrysene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					19	47	ug/l		1/15	Grab
1,2-Dichloro-benzene	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					198	794	ug/l		1/15	Grab
Diethyl-Phthalate	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT					46	113	ug/l		1/15	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
C W O
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. *(Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)*

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE | NUMBER

DATE: YEAR | MO | DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

PERMIT NUMBER (2-16):
DISCHARGE NUMBER (17-19): 001

MONITORING PERIOD
FROM YEAR (20-21) MO (22-23) DAY (24-25) TO YEAR (26-27) MO (28-29) DAY (30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Dimethyl Phthalate	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					19	47				
Di-n-butyl Phthalate	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					20	43				
Fluoranthene	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					32	54				
Fluorene	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					19	47				
Indeno(1,2,3-cd) pyrene	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					Report	24				
Isophorone	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					Report	85				
Naphthalene	SAMPLE MEASUREMENT							ug/l		1/15	Grab
	PERMIT REQUIREMENT					19	47				

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
(201) 804-3043
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 USC § 1319. *(Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)*

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE, NUMBER

DATE: YEAR, MO, DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME scp Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

PERMIT NUMBER (2-16)

DISCHARGE NUMBER (17-19): 00

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FROM YEAR (20-21)	MO (22-23)	DAY (24-25)	TO YEAR (26-27)	MO (28-29)	DAY (30-31)

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PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Nitrobenzene	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					2237	6402			1/15	Grab
Phenanthrene	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					19	47			1/15	Grab
Pyrene	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					20	48			1/15	Grab
Beta-BHC	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT					Report	1006			1/15	Grab
4-4'-DDT Effluent	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT	N/A	N/A	lb/day	N/A	N/A	0.012			1/7	Grab
4-4'-DDT See Comment Below	SAMPLE MEASUREMENT							ug/l		1	
	PERMIT REQUIREMENT	2.4E-7	4.8E-7	lb/day	N/A	0.0004	0.0008			1/7	Grab
Endosulfan I Effluent	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT	N/A	N/A	lb/day	N/A	N/A	0.014			1/7	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
0304
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)*

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE | NUMBER

DATE: YEAR | MO | DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

This parameter is for reporting purposes only and will not be used to determine discharge compliance.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

(2-16) PERMIT NUMBER
(17-19) 001 DISCHARGE NUMBER

MONITORING PERIOD
FROM YEAR (20-21) MO (22-23) DAY (24-25) TO YEAR (26-27) MO (28-29) DAY (30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Endosulfan I See Comment Below	SAMPLE MEASUREMENT			lb/day				mg/l			
	PERMIT REQUIREMENT	2.1E-6	4.2E-6		N/A	0.0056	0.0072			1/7	Grab
Endrin Effluent	SAMPLE MEASUREMENT			lb/day				mg/l			
	PERMIT REQUIREMENT	N/A	N/A		N/A	N/A	0.006			1/7	Grab
Endrin See Comment Below	SAMPLE MEASUREMENT			lb/day				mg/l			
	PERMIT REQUIREMENT	6.0E-7	1.2E-6		N/A	0.001	0.002			1/7	Grab
PCBs	SAMPLE MEASUREMENT							mg/l			
	PERMIT REQUIREMENT									1/7	Grab
PCBs	SAMPLE MEASUREMENT			lb/day				mg/l			
	PERMIT REQUIREMENT	7.2E-6	1.5E-5		N/A	0.012	0.025			1/7	Grab
Arsenic	SAMPLE MEASUREMENT			lb/day				mg/l			
	PERMIT REQUIREMENT	0.0108	0.037		N/A	34	62			1/7	Comp.
Beryllium	SAMPLE MEASUREMENT							mg/l			
	PERMIT REQUIREMENT				N/A	Report	3			1/7	Comp.

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE, NUMBER

DATE: YEAR, MO, DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

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PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
	001

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM				TO			
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Cadmium	SAMPLE MEASUREMENT			lb/day				mg/l		1/7	Comp
	PERMIT REQUIREMENT	0.0048	0.0096		N/A	8	16				
Chromium, total	SAMPLE MEASUREMENT							mg/l		1/15	Comp
	PERMIT REQUIREMENT				N/A	500	1000				
Chromium, Hexavalent	SAMPLE MEASUREMENT							mg/l		1/15	Comp.
	PERMIT REQUIREMENT				N/A	50	100				
Copper Effluent	SAMPLE MEASUREMENT							mg/l		1/7	Comp.
	PERMIT REQUIREMENT				N/A	Report	1.0				
Copper See Comment Below	SAMPLE MEASUREMENT							mg/l		1/7	Comp
	PERMIT REQUIREMENT				N/A	ND	ND				
Lead	SAMPLE MEASUREMENT			lb/day				mg/l		1/7	Comp.
	PERMIT REQUIREMENT	0.003	0.006		N/A	5	10				
Mercury Effluent	SAMPLE MEASUREMENT							mg/l		1/7	Comp
	PERMIT REQUIREMENT				N/A	Report	0.2				

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY
TYPED OR PRINTED							

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
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PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
	001

MONITORING PERIOD

FROM YEAR (20-21)	MO (22-23)	DAY (24-25)	TO YEAR (26-27)	MO (28-29)	DAY (30-31)

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PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Mercury See Comment Below	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT				N/A	ND	ND			1/7	Comp.
Nickel	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT				N/A	Report	1.0			1/7	Comp.
Nickel See Comment Below	SAMPLE MEASUREMENT							ug/l			
	PERMIT REQUIREMENT				N/A	ND	ND			1/7	Comp
Silver	SAMPLE MEASUREMENT			lb/day				ug/l			
	PERMIT REQUIREMENT	0.0067	0.0015		N/A	1.23	2.46			1/7	Comp.
Zinc	SAMPLE MEASUREMENT							mg/l			
	PERMIT REQUIREMENT				N/A	Report	0.05			1/7	Comp.
Zinc See Comment Below	SAMPLE MEASUREMENT							mg/l			
	PERMIT REQUIREMENT				N/A	ND	ND			1/7	Comp.
Chronic Toxicity Mysid Shrimp TBP3E 23	SAMPLE MEASUREMENT							%			
	PERMIT REQUIREMENT	N/A	N/A		79						

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE	DATE
CC30	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)		AREA CODE / NUMBER	YEAR / MO / DAY
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

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PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)
NAME SCP Carlstadt
ADDRESS
FACILITY
LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004
Expires 3-31-88

PERMIT NUMBER (2-16)
DISCHARGE NUMBER (17-19): 001

MONITORING PERIOD

	YEAR (20-21)	MO (22-23)	DAY (24-25)		YEAR (26-27)	MO (28-29)	DAY (30-31)
FROM				TO			

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PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Chronic Toxicity Sheepshead Minnow TBP6A 33	SAMPLE MEASUREMENT							%			
	PERMIT REQUIREMENT	N/A	N/A		79						
Chronic Toxicity Inland Silverside TBP6B 23	SAMPLE MEASUREMENT							%			
	PERMIT REQUIREMENT	N/A	N/A		79						
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME & TITLE PRINCIPAL EXECUTIVE OFFICER

C304

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)*

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TELEPHONE: AREA CODE | NUMBER

DATE: YEAR | MO | DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*